THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ASHOK K. TALWAR

Appeal No. 96-2546
Application 08/001,825[1]

HEARD: June 10, 1999

Before URYNOWICZ, FLEMING, and RUGGIERO, Administrative Patent Judges.

RUGGIERO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of

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[1] Application for patent filed January 8, 1993.

claims 1-15, all of the claims pending in the present application. An amendment after final rejection was filed February 6, 1995 and was entered by the Examiner.

The claimed invention relates to an apparatus and a method for detecting the direction of propagation in which an electromagnetic wave is traveling along a metallic surface.

Claim 1 is illustrative of the invention and reads as follows:

1. A surface wave directional detection system for determining the direction in which an electromagnetic wave propagating along a metallic surface is travelling, comprising:

at least a first loop probe disposed in close proximity to the metallic surface;

at least a second loop probe disposed in close proximity to the metallic surface and spaced apart from the first loop probe a first predetermined distance, wherein an electromagnetic wave travelling along the metallic surface induces a signal in the first and second loop probes;

a transmission line having a first probe connection point and a second probe connection point, the first and second loop probes being electrically coupled to the transmission line at the first probe connection point and the second probe connection point, respectively, the first probe connection point and the second probe connection point being separated by a second predetermined distance;

at least a portion of the signal induced in the first loop probe being transmitted on the transmission line from the first probe connection point to the second probe connection

point, and at least a portion of the signal induced in the second loop probe being transmitted on the transmission line from the second probe connection point to the first probe connection point, the induced signal portions of the first and second loop probes combining to form a first composite signal at the first probe connection point and a second composite signal at the second probe connection point; and

means for comparing the first composite signal and the second composite signal, the comparing means being responsive to the first and second composite signals and generating an output signal in response to the comparison thereof, the output signal being indicative of the direction of travel of the electromagnetic wave.

The Examiner relies on the following references:

Fenwick	4,063,250	Dec. 13, 1977
Lee	4,611,212	Sep. 09, 1986

The rejections of the appealed claims are set forth by the Examiner as follows:

1. Claims 1, 3-5, 7, and 10-14 stand finally rejected under 35 U.S.C. § 102(b) as being anticipated by Lee.

2. Claims 1-15 stand finally rejected under 35 U.S.C. § 103 as being unpatentable over Lee in view of Fenwick.

Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the Brief and Answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the Examiner, the arguments in support of the rejections and the evidence of anticipation and obviousness relied upon by the Examiner as support for the rejections. We have, likewise, reviewed and taken into consideration, in reaching our decision, Appellant's arguments set forth in the Brief along with the Examiner's rationale in support of the rejections and arguments in rebuttal set forth in the Examiner's Answer.

It is our view, after consideration of the record before us, that the disclosure of Lee does not fully meet the invention as recited in claims 1, 3-5, 7, and 10-14. We are also of the view that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention set forth in claims 1-15. Accordingly, we reverse.

We consider first the rejection of claims 1, 3-5, 7, and 10-14 under 35 U.S.C. § 102(b) as anticipated by Lee. Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as

well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir.); cert. dismissed, 468 U.S. 1228 (1984); W.L. Gore & Assocs.

v. Garlock, Inc., 721 F.2d 1540, 1554, 220 USPQ 303, 313 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

With respect to independent claim 1, the Examiner attempts to read the various limitations on the Lee reference (Answer, page 3 which references the prior Office action, the final rejection, designated as paper number 9). In response, Appellant argues several alleged distinctions over Lee including the contention (Brief, pages 24-26) that the diversity combiner in Lee does not perform a comparing operation on composite signals which provides an indication of the direction of travel of a surface wave which would meet the "means for comparing . . ." limitation of independent claim 1. Appellant points to a passage (column 2, lines 7-9) in the Lee reference which describes the operation of Lee's diversity combiner as combining the first and second output signals from a hybrid circuit. In Appellant's view, Lee's diversity combiner cannot reasonably be considered to be a comparator which produces an output which indicates the direction of travel of a surface wave as claimed.

Upon careful review of the Lee reference and the arguments of record, we are in agreement with Appellant's

stated position in the Brief with regard to the present claimed comparing and direction indicating limitations. We can find no teaching in Lee, either attributed to the diversity combiner or any other circuit, that would perform a comparison operation to produce a surface wave direction indication output.

We note that, in the responsive arguments portion at page 7 of the Answer, the Examiner offers a much broader interpretation of the term "comparator" than what is asserted by Appellant. Initially, the Examiner suggests that simply because Lee's diversity combiner has inputs for two composite signals, a comparison operation of the two signals takes place. Further, the Examiner attributes a comparator function to Lee's summer 24 which subtracts two signals to provide a resultant H signal. It is our view, however, that, to the extent the Examiner's general observation as to comparing operations is correct, the Lee reference remains deficient in providing any wave direction indication as a result of any such comparison. The Examiner's conclusion (Answer, page 7) that a direction indicator output is necessary since Lee's antenna arrangement would need to be rotated to provide an

optimum signal is not supported by any evidence of record. We are not inclined to dispense with proof by evidence when the proposition at issue is not supported by a teaching in a prior art reference, common knowledge or capable of unquestionable demonstration. Our reviewing court requires this evidence in order to establish a prima facie case. In re Knapp-Monarch Co., 296 F.2d 230, 232, 132 USPQ 6, 8 (CCPA 1961); In re Cofer, 354 F.2d 664, 668, 148 USPQ 268, 271-72 (CCPA 1966).

In view of the above, it is our opinion that, since the comparison operation with attendant surface wave direction indication which appears in all of the rejected independent claims 1, 7, 12, and 14 is not suggested in the prior art of record, the Examiner has not established a prima facie case of anticipation. Accordingly, we can not sustain the 35 U.S.C. § 102(b) rejection of independent claims 1, 7, 12 and 14 nor claims 3-5, 10, 11, and 13 which depend therefrom.

We now consider the rejection of claims 1-15 under 35 U.S.C. § 103 as being unpatentable over Fenwick in view of Lee. From the Examiner's statement of the rejection (Answer, page 3 which again references the prior Office action, the

final rejection, designated as paper number 9), it is apparent that Fenwick was applied for the sole purpose of meeting the claimed limitations relating to the particular wavelength separation between the loop probes and the particular transmission lime length between connection points. However, we can find no teaching in Fenwick relating to the comparison of signals to produce an indication of surface wave direction of travel which we found lacking in our earlier discussion of the Lee reference. Accordingly, since the teachings of Fenwick do not cure the innate deficiencies of Lee, it is our view that the Examiner has not established a prima facie case of obviousness with respect to claims 1-15. Therefore, we do not sustain the Examiner's 35 U.S.C. § 103 rejection of claims 1-15.

In summary, we have not sustained either of the Examiner's rejections of the claims on appeal. Therefore, the decision of the Examiner rejecting claims 1-15 is reversed.

REVERSED

STANLEY M. URYNOWICZ, JR.)
Administrative Patent Judge)

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JOSEPH F. RUGGIERO	)	
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